

23° N., 95° W., had a south-southeast wind of force 8, attended by rain squalls of hurricane force, barometer 29.73; while the S. S. *Agwistar*, near 22½° N., 96½° W., had a west wind of force 7, barometer 29.62.

Thereafter the center moved toward west-southwest, then west, and passed inland a short distance north of Tampico on the morning of the 19th, accompanied by heavy rains. Quoting from the report of W. R. Stevens, forecaster on duty at New Orleans:

It is likely that the disturbance did not reach hurricane intensity although gusts and squalls of hurricane force probably occurred near the center. The highest velocity reported at Tampico was southwest 30 m. p. h. at 9 and 10 a. m., with lowest pressure 29.52 inches at 9 a. m. August 19.

From the morning of the 17th until the morning of the 19th, when the depression passed inland, frequent advisory messages and bulletins from the forecast center at New Orleans apprised all marine and other interests of the movements of the disturbance. On the morning of the 17th northeast storm warnings were ordered up from Brownsville to Corpus Christi, Tex., and southeast storm warnings northward from Corpus Christi to Matagorda.

*Disturbance of August 20-22.*—On the morning of August 20, slightly falling pressure, with cyclonic circulation, over and northeast of the northern Bahama Islands was evident on the weather map. By 7 p. m. (e. s. t.), although no low center could yet be located, a more vigorous cyclonic circulation was established over the region between approximately 25°-30° N., 75°-80° W., with ships' reports showing wind-forces of 4-6, on the Beaufort scale.

At 7 a. m. of the 21st, observations from a number of ships showed the development of a small cyclone center close to 28° N., 78° W., with accompaniment of fresh to strong winds, highest force 6, with lowest barometer 29.71 inches.

Quoting from the report of Grady Norton, forecaster on duty at Jacksonville, Fla.:

The center passed inland between Titusville and Daytona Beach, Fla., at about 5 p. m. of August 21. The barometer fell to 29.60 inches at Titusville, with winds from west and southwest 40 to 55 miles per hour as the center passed. Squalls of about 30 miles per hour occurred northward beyond Jacksonville along the coast, but at Jacksonville, which is about 18 miles inland, the highest wind was only 25 miles per hour (extreme 27). All warnings were lowered at 8:30 p. m. when the disturbance was over the interior of northern Florida diminishing in intensity.

No appreciable damage was caused by the storm according to early reports, and no loss of life occurred. The copious rains attending the disturbance were very beneficial to citrus and other late crops, and winds were not strong enough to cause any injury to fruit after reaching inland to the citrus regions.

The remnants of the disturbance persisted and crossed the northern part of the State and were in the vicinity of Apalachicola at 8 a. m. of August 22, but no strong winds occurred on the west coast of this district.

Frequent and ample advisory messages and cautionary warnings to small craft in connection with this disturbance were issued from the Jacksonville forecast center. Northeast storm warnings at 9:30 a. m. (e. s. t.) of the 21st were ordered hoisted from Fort Pierce, Fla., to Charleston, S. C.

*Disturbance of August 28-30.*—At the morning observation of August 28, conditions over the Yucatan Peninsula pointed toward the formation of a slight depression, with lowest barometer, 29.74, at Payo Obispo. At 7 p. m. of that date the suspicion was strengthened that a tropical disturbance was originating in the vicinity. Pressure at Merida had fallen to 29.63 inches, which indicated a northwestward movement of the depression.

On the morning of the 29th, reports from ship and Mexican coast stations indicated the formation of a circulatory wind system with center in the Gulf of Campeche. The S. S. *Ceiba*, near 20° N., 92° W., at 7 a. m. reported the lowest barometer, 29.70, with south wind of force 6. At 7 p. m. (e. s. t.) of the 29th four ships in the southwestern Gulf, within the region 20°-23° N., 92°-95° W., clearly showed the existence of a moderate depression with center a little north of the 20th parallel and close to the 95th meridian. Three of the ships, at some distance from the center reported wind forces of 5-6, while the S. S. *Amapala* in 19.8° N., 94.8° W., had a moderate west gale (force 7), pressure 29.53 inches. The extreme wind reported by the *Amapala* was of force 8, south, at 8 p. m., local time, of the 29th. During the morning of the 30th the disturbance became locally of much increased energy, as indicated by a report received by mail from the S. S. *Cayo Mambi*. This ship, in 21°40' N., 97°00' W., had a barometer reading of 29.52 inches, accompanied by a southeast gale of force 9. The maximum wind reported by the ship was from the east, force 11. The disturbance passed inland near Tuxpam on the morning of the 30th.

Advisories and cautionary warnings were issued from New Orleans during the 29th and on the morning of the 30th.

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[RICHMOND T. ZOCH, in Charge of Library]

By AMY D. PUTNAM

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## SOLAR OBSERVATIONS

SOLAR RADIATION MEASUREMENTS DURING  
AUGUST 1936

By IRVING F. HAND, Assistant in Solar Radiation Investigations

For a description of instruments employed and their exposures, the reader is referred to the January 1935 REVIEW, page 24.

Table 1 shows that solar radiation intensities averaged below normal at all three Weather Bureau stations. Considerable haze, dust, and smoke were reported from both Madison and Lincoln.

Table 2 shows an excess in the amount of total solar and sky radiation received on a horizontal surface at all stations except Miami, Riverside, Blue Hill, and Ithaca.

The solar work at Pittsburgh was permanently discontinued during the month.

Polarization observations made at Washington on 4 days give a mean of 58 percent with a maximum of 61 percent on the 31st. At Madison, observations on 2 days give a mean of 44 percent with the higher value of 57 percent on the 24th. All of these values are below the corresponding August normals.

TABLE 1.—Solar radiation intensities during August 1936

[Gram-calories per minute per square centimeter of normal surface]

## WASHINGTON, D. C.

Date	Sun's zenith distance										Noon		
	8 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°			
	75th mer. time	Air mass										Local mean solar time	
		A. M.					P. M.						
		e	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0			5.0
Aug. 1.....	mm.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	cal.	mm.		
Aug. 3.....	19.23				1.20	1.35					16.20		
Aug. 5.....	17.96			0.73	.96	1.27					17.37		
Aug. 12.....	18.59				.68						17.96		
Aug. 13.....	19.89			.50	.67						21.28		
Aug. 17.....	19.23			.31	.44						16.20		
Aug. 18.....	17.37		0.77	.92	1.07	1.29					15.63		
Aug. 25.....	7.57			.81							7.25		
Aug. 31.....	9.14	0.90 (.90)	.96 (.86)	1.07	1.24	1.46					8.76		
Means.....				.72	.89	1.34							
Departures..		+.27	+.17	-.05	-.05								

TABLE 1.—Solar radiation intensities during August 1936—Contd.  
MADISON, WIS.

Date	Sun's zenith distance											Local mean solar time
	8 a. m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon	
	75th mer. time	Air mass										
		A. M.						P. M.				
		e	5.0	4.0	3.0	2.0	1.0	2.0	3.0	4.0	5.0	
Aug. 1	mm. 8. 81	cal. 0. 44	cal. 0. 53	cal. 0. 70	cal. 0. 88	cal. 1. 27	cal.	cal.	cal.	cal.	mm. 10. 21	
Aug. 3	14. 10	. 50	. 63								14. 60	
Aug. 7	8. 91		. 42	. 57	. 78	1. 25					9. 14	
Aug. 15	16. 20					1. 12					17. 37	
Aug. 24	15. 65					1. 33					17. 37	
Means		(. 47)	. 54	. 75	. 93	1. 24						
Departures		-. 24	-. 27	-. 22	-. 16							

## LINCOLN, NEBR.

Aug. 5.....	12.68	12.68	12.68	12.68	12.68	12.68	12.68	12.68	12.68	12.68	12.68
Aug. 8.....	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10	14.10
Aug. 12.....	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81
Aug. 13.....	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81	11.81
Aug. 14.....	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65
Aug. 17.....	14.10	0.58	.69	.83	1.04	1.25	1.04	.83	.69	.58	14.10
Aug. 18.....	10.97	.71	.82	.97	1.15	1.31	1.07	.99	.82	.71	10.97
Means.....	(.64)	(.67)	(.81)	(.92)	(.1.02)	(.1.28)	(.1.07)	(.89)	(.75)	(.64)	(.64)
Departures..	-.04	-.11	-.10	-.07	-.07	-.11	-.11	-.19	-.19	-.18	-.18

## BLUE HILL OBSERVATORY OF HARVARD UNIVERSITY

Aug. 1.....	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
Aug. 3.....	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Aug. 5.....	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Aug. 7.....	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Aug. 8.....	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Aug. 9.....	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Aug. 10.....	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Aug. 12.....	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
Aug. 13.....	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Aug. 14.....	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
Aug. 16.....	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Aug. 18.....	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Aug. 19.....	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
Aug. 20.....	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
Aug. 24.....	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Aug. 25.....	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
Aug. 26.....	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Aug. 27.....	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
Aug. 28.....	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Aug. 30.....	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9
Aug. 31.....	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Means.....	(.62)	(.82)	(.96)	(.1.19)	(.1.15)	(.1.15)	(.1.06)	(.78)	(.66)	(.66)	(.66)

<sup>1</sup> Extrapolated.